

# Department of Pharmaceutical Biotechnology, MCOPS organized a Guest lecture by Prof. Kannan Pakshirajan

## Environmental Bioprocess Engineering

Syngas conversion to biofuels

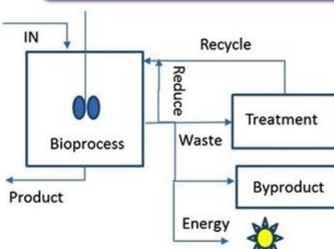
Biodegradation of endocrine disrupting compounds (EDCs)

Metal and selenium biorecovery

Lutein production from microalgae treating anaerobic digestate

Bioplastic (PHB) production from waste lignocellulosic biomass

Photo-activated sludge system for shortcut nitrogen removal from wastewater



Kannan Pakshirajan, IIT Guwahati



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SM +18

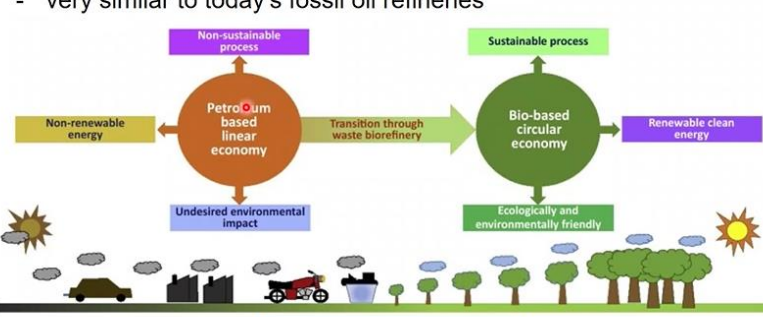
Subrahman...

## Petroleum refinery Vs Biorefinery


**Petroleum refinery** produces multiple fuels, basic chemicals and sophisticated products

**Biorefinery**

- An integrated approach for biomass and waste conversion
- produces a wide range of valuable products
- very similar to today's fossil oil refineries



~ 9.5 gigatons CO<sub>2</sub>/year      ~ 650 km<sup>3</sup> wastewater/year      ~ 2.2 gigatons SW/year

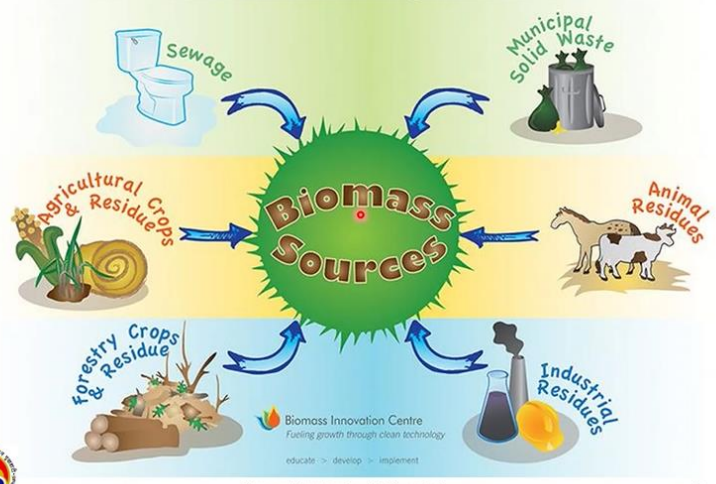


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# Feedstock - raw materials used in biorefinery



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